

REMARKS/ARGUMENTS

Claims 1 - 26 remain in the application. Claims 11 - 26 have been allowed and Claims 27 - 49 have been cancelled.

Claim 1 was amended at lines 9 and 10 to particularly point out that the thicker regions of the second conductive lines are not formed over an MTJ or adjacent to an MTJ. The applicants submit that no new subject matter has been introduced and that this amendment is supported by FIGS. 8 and 9 that clearly show the thicker region of the second conductive line is comprised of upper metal layer 46b and barrier layer 45 and is not positioned over an MTJ 36 or adjacent to an MTJ 36 but is located a distance greater than "y" away from an MTJ 36 according to FIG. 9. Furthermore, the thinner regions are described as being over the MTJs at lines 15 and 16 on page 18 of the specification.

Claim 5 was amended at lines 2 and 3 to state that the thinner regions of the second lines are not only formed above the MTJs but also above portions of the third insulation layer that are adjacent to the MTJs. This amendment is supported by FIG. 8 where the thinner regions of second line 37 having a thickness t_1 are clearly shown over MTJs 36 and above portions of the third insulation layer 35 adjacent to said MTJs. Note also that the thicker portions of the second line 37 having a thickness t_2 and width "z" are separated from the MTJs by a distance of at least "y".

Claim 6 was amended in view of the amendment to lines 9 and 10 in Claim 1.

Examiner Anya is thanked for carefully reviewing the subject patent application. All claims under consideration are now believed to be in allowable condition, and allowance is so requested.

I. Rejection under 35 U.S.C. 102 (a)

Reconsideration of the rejection of claims 1 and 4 under 35 USC 102 (a) as being anticipated by Lee (USPAB 2005/0102720) is requested, in light of the following.

The Applicants respectfully submit that amended claim 1 is not anticipated by Lee. Lee shows in FIG. 16 that thicker regions of the dual damascene conductor (11) are formed over the MTJs (30). According to paragraph [0046], the thicker regions are comprised of a first portion, a via (11v), and a second portion which is a top conductor (11c). Only the second portion (11c) is formed above the dielectric layer (31). Thus, the thinner regions comprised of second portion (11c) are formed only above dielectric layer (31) and not above MTJs (30). This configuration is not the same as illustrated by the Applicants in FIGS. 8 and 9 that clearly show thinner regions with thickness t_1 of the second conductive line to be above the MTJs 36 and thicker regions (thickness t_2) not to be above the MTJs. Since independent claim 1 is now believed to be in allowable form, dependent claim 4 which depends on claim 1 is also believed to be in allowable form.

II. Rejection under 35 U.S.C. 103 (a)

Reconsideration of the rejection of claims 1 - 6 and 10 under 35 USC 103 (a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Gider et al. (US Patent 6873542) is requested, in light of the following.

Gider et al. teach in col. 4, lines 36-39, that "the word line (104) passes through the free layer (108) between the first and second ferromagnetic layers (110, 112) and, in that region, functions as the coupling layer (114)". The Applicants submit that the claimed invention is patentable in that Gider et al. teach that the word line passes through the MTJ and functions as a coupling layer in the free layer and does not suggest that a word line of varying thickness could be positioned above the MTJ and perform the same function. Lines 40 – 47 in col. 4 further state that the word line (104) may be thicker outside the cell than the coupling layer (114). According to FIG. 3, the thicker portions of the word line outside the MTJ cell are of equal thickness and contact the sides of the MTJ. There is no indication or teaching in lines 40 – 47 of col. 4 that the word line (104) outside the cell has a varying thickness. The Applicants in amended claim 1 point out that the thicker regions of the second lines are not adjacent to the MTJs and this is supported by FIGS. 8 and 9 that clearly show the thicker portions of second line 37 to be located a distance of at least "y" from the MTJs 36. Since independent claim 1 is now believed to be in allowable form, we submit that dependent claims 2 – 6 and 10 are in allowable form.

Reconsideration of the rejection of claim 7 under 35 USC 103 (a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Gider et al. (US Patent 6873542) and further in view of Ooishi (US 6815785) is requested, in light of the following.

The Applicants respectfully submit that since claim 7 is dependent on claim 4 and claim 4 is now believed to be in allowable form, claim 7 is also in allowable form. Furthermore, we request that claims 8 and 9 objected to as being dependent upon a rejected base claim, be allowed since claims 1 – 7 are now believed to be in allowable form.

The Applicants respectfully submit that none of the applied or known references address the claimed invention as described in claims 1 to 10 in which a second conductor layer comprised of second lines is formed above an MTJ array and has thinner regions formed above and adjacent to the MTJs and thicker regions not over or adjacent to the MTJs. The claimed invention is believed to be patentable over the prior art cited, as it is respectfully suggested that the combination of the AAPA, Gider, and Ooishi references does not teach thinner regions of a second conductor line that are above and adjacent to MTJs. Applicant has claimed his process in detail. The processes of FIGS. 2 - 9 (claims 1 - 10) are believed to be novel and patentable over the applied references. We therefore request Examiner Anya to reconsider the rejections and objections in view of the aforementioned arguments.

All claims are now believed to be in condition for allowance, and allowance is so requested.

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Amendment dated February xx, 2006
Reply to Office communication of November 15, 2005

It is requested that should there be any problems with this Amendment, please call the undersigned Attorney at (845) 452-5863.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'S. B. Ackerman', with a stylized, flowing script.

Stephen B. Ackerman, Reg. No, 37,761